

1

TITLE

HOSE CLAMP

BACKGROUND OF THE INVENTION

1) Field Of The Invention:

6 The present invention relates to hose clamps generally and more specifically to hose clamps which can be installed by a hand operation and the hand operation automatically results tightening of the clamp.

2) Description Of The Prior Art:

Many prior art patents disclose various hose clamps, however of this variety, it appears from an investigation of the field, that two of these are most prevalent in use. One of these utilizes a screw
11 arrangement for loosening and tightening the clamp as shown and discussed re the prior art in US Patent 5,664,295. This not only necessitates the operator having a screwdriver readily available, but also the very tightening operation is difficult, for not only must the clamp be in a position where the screw is available to the operator for tightening, but the operator must hold the clamp with one hand to keep it from rotating away, while tightening the screw with the screwdriver in
16 the other hand which frequently results in an injury when the screwdriver slips. Another prior art device utilizes a spring clamp which is, as a result of its material or configuration, normally biased to its tightly closed position. To open the spring clamp, the operator must manipulate a pair of tangs, as shown in the above mentioned patent, which is again a difficult operation as the tangs must overcome a spring tension load.

21

SUMMARY OF THE INVENTION

The present invention contemplates a hose clamp including a circular member with overlapping

ends. The outer end of the circular member, which lies over the overlapping inner end of the circular member, has a plurality of parallel toothed projections projecting from the upper surface thereof adjacent the end thereof, with the projections lying at right angles to the circumference of the clamp. The end of the overlapping inner end of the circular member which lies under the outer end, has secured thereto a support member which extends radially outwardly from the outer surface of the overlapping inner end and passes around and projects above the outer end. An abutting member is fixedly secured to support member adjacent the end of the overlapping inner member and a securing member is pivotly secured to the support member at a short distance from the abutting member, with the securing member having an abutting end being movable into abutting engagement with the abutting member. A locking member is pivotally secured to the securing member adjacent its abutting end, and has a toothed surface thereon engageable with the toothed projections on the upper surface of the inner end. The outer end has a graspable outwardly extending projection thereon spaced from the toothed projections thereon, which graspable projection may be pressed upon to tighten the clamp, and the abutting member is flexible enough to resiliently engage and secure the securing member in the locked position and being flexed to release the securing member.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a perspective view of the hose clamp of this invention;

Fig. 2 is a plan view of the clamp shown in Fig. 1;

Fig.3 is a left side elevational view;

Fig.4is a front elevational view with the hose clamp in the locked position; and

Fig. 5 is a view like Fig. 4 with the clamp in the unlocked condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

46 Referring now to the drawings, a hose clamp is shown generally at 10 and includes an annular member 12 having overlapping end portions, namely an overlapping inner end 14 and an overlapping outer end 16. The overlapping outer end 16 has approximately 25% of its periphery, starting from the very end thereof, provided with a series of toothed projections 18 thereon, with the width of the toothed portion 18 of the overlapping outer end 16 being reduced from the width
51 of the remainder of the annular member 12. As seen, each tooth 19 of the toothed projections 18 has its clockwise face 20 disposed radially with respect to the center of the annular member 12, while its other face 21 is disposed in a chordal direction. Spaced slightly clockwise from the tooth projections 18, a radially projecting graspable member 22 projects outwardly from the outer surface of the annular member 12.

56 The overlapping inner end 14 of the of the annular member 12 lies under the outer end 16, and adjoining its very end has a locking arrangement 23 for cooperating with the toothed projections 18 including an abutting member 24 projecting outwardly therefrom, which abutting member includes a pair of laterally spaced apart legs 26, with one leg of said pair of legs joined to the outer surface of the end 14 on each side of the toothed portion 18. The pair of legs 26 of the
61 abutting member 24 are connected at their outer end by a connecting portion 28 which has a latching lip 30 extending to the left therefrom as seen in the drawings. Spaced counter clockwise from the legs 26 are a pair of laterally spaced apart pivot members 32, with one pivot member of said pair of members joined to the outer surface of the end 14 on each side of the toothed portion 18 and projecting outwardly therefrom to slightly overly the periphery of the toothed portion 18.

66 Pivotaly secured to the pivot members 32 by a pivot pin 34 is an "L" shaped securing member 36,
which has an unlocked position as seen in Fig. 5, and a locked position as seen in Figs 1 and 4. In
the unlocked position, it is pivoted counterclockwise from its locked position, while in its locked
position, it is pivoted clockwise into abutting engagement with the abutting member 24 and
secured in the abutting relationship by the lip 30 overlying the outer corner 38 at the abutting
71 right end 40 thereof. A pair of laterally spaced projections 42 extend downwardly from the right
abutting end 40 of the securing member 36, and pivotally secured thereto by a pivot pin 44 is a
locking member 46 having toothed projections 48 thereon on the lower end thereof, with the
toothed projections 48 being formed to fittingly cooperate with the toothed projections 18. A
compression spring 49 is compressed between the top of the locking member 46 and the inner
76 surface of the securing member 36.

As seen in Fig. 4, with the clamp in its locked position, the member 46 will be pivoted so that its
toothed projections 48 will be engaged with the toothed projections 18 and the abutting member
is locking it in place. In this relationship, an operator can squeeze the projection 22 and the
securing portion 36 to move the projecting portion 22 toward the connecting portion 28 to
81 resiliently ratchet the clamp 12 to a tighter relationship. To release the clamp 12, the operator can
press downwardly and to the right on the connecting portion 28 to flex the legs 26 (in Fig. 5, the
legs 26 being shown in their flexed condition for illustration purposes, since normally they are
straight as seen in Fig. 4) to release the lip 30 from the securing member 36 and lift the securing
member such that the toothed projections 48 of the locking member are disengaged from the
86 from the toothed projections 18, at which time the diameter of the clamp can be increased to

release it from the hose

While only a preferred embodiment of this invention has been shown and described, it is apparent that changes can be made therein without departing from the scope of this invention as claimed in the following claims: